

AMENDMENTS TO THE CLAIMS

1-44. (Cancelled)

45. (Cancelled)

46. (Currently Amended) A The test circuit as claimed in claim 45, that is incorporated in a device, the test circuit being operable to carry out a verification of a first connection node for outputting a signal of said device in a usual operation, said test circuit comprising:

a test data generating circuit operable to generate test data for carrying out said verification;

a test output buffer connected to said first connection node, the test output buffer being operable to receive test data from said test data generating circuit and to output the test data to said first connection node; and

~~further comprising~~ a test input circuit connected to a second connection node to which a signal is applied, said test input circuit being operable to receive test data that are input to said second connection node.

47. (Previously Presented) The test circuit as claimed in claim 46, wherein said test circuit further comprises a test data processing circuit operable to process said test data.

48. (Previously Presented) The test circuit as claimed in claim 46, wherein the input signal is a differential signal, the circuit or device further comprising a data input buffer operable to convert the differential input signal to a single end signal, and to supply the single end signal to an internal circuit.

49. (Previously Presented) The test circuit as claimed in claim 46, further comprising a test data processing circuit operable to process said test data, said test data processing circuit comprising at least one flip-flop circuit.

50. (Currently Amended) A The test circuit as claimed in claim 45, that is incorporated in a device, the test circuit being operable to carry out a verification of a first connection node for outputting a signal of said device in a usual operation, said test circuit comprising:

a test data generating circuit operable to generate test data for carrying out said verification;

a test output buffer connected to said first connection node, the test output buffer being operable to receive test data from said test data generating circuit and to output the test data to said first connection node; and

~~wherein said test circuit further comprises ESD protectors connected to said first connection node.~~

51. (Currently Amended) A The test circuit as claimed in claim 45, that is incorporated in a device, the test circuit being operable to carry out a verification of a

first connection node for outputting a signal of said device in a usual operation, said test circuit comprising:

a test data generating circuit operable to generate test data for carrying out said verification;

a test output buffer connected to said first connection node, the test output buffer being operable to receive test data from said test data generating circuit and to output the test data to said first connection node; and

further comprising a circuit operable to supply said test data to said first connection node based on a test mode signal.

52. (Currently Amended) A The test circuit as claimed in claim 45, that is incorporated in a device, the test circuit being operable to carry out a verification of a first connection node for outputting a signal of said device in a usual operation, said test circuit comprising:

a test data generating circuit operable to generate test data for carrying out said verification; and

a test output buffer connected to said first connection node, the test output buffer being operable to receive test data from said test data generating circuit and to output the test data to said first connection node,

wherein said test data are boundary scan register signals.

53. (Currently Amended) A The test circuit as claimed in claim 45, that is incorporated in a device, the test circuit being operable to carry out a verification of a

first connection node for outputting a signal of said device in a usual operation, said test circuit comprising:

a test data generating circuit operable to generate test data for carrying out said verification;

a test output buffer connected to said first connection node, the test output buffer being operable to receive test data from said test data generating circuit and to output the test data to said first connection node; and

~~further comprising a data output buffer operable to convert a single end signal from an internal circuit to a differential signal, and to supply the differential signal to said first connection node.~~

54. (Currently Amended) A The test circuit as claimed in claim 45, that is incorporated in a device, the test circuit being operable to carry out a verification of a first connection node for outputting a signal of said device in a usual operation, said test circuit comprising:

a test data generating circuit operable to generate test data for carrying out said verification;

a test output buffer connected to said first connection node, the test output buffer being operable to receive test data from said test data generating circuit and to output the test data to said first connection node,

wherein a signal line connected to said first connection node is provided with a terminating resistor.

55. (Currently Amended) A The test circuit as claimed in claim 45, that is incorporated in a device, the test circuit being operable to carry out a verification of a first connection node for outputting a signal of said device in a usual operation, said test circuit comprising:

a test data generating circuit operable to generate test data for carrying out said verification; and

a test output buffer connected to said first connection node, the test output buffer being operable to receive test data from said test data generating circuit and to output the test data to said first connection node,

wherein said test data generating circuit comprises a circuit that has a register function capable of performing scanning.

56. (Cancelled)

57. (Currently Amended) A The semiconductor integrated circuit device as claimed in claim 56, having an output circuit operable to transmit a signal via a first connection node, and a test circuit operable to carry out a connection verification of said first connection node in a usual operation, said test circuit comprising:

a test data generating circuit operable to generate test data for carrying out the connection verification of said first connection node; and

a test output buffer connected to said output circuit, the test output buffer being operable to receive test data from said test data generating circuit and to output the test data to said first connection node,

wherein said output circuit is operable to output a differential signal to said first connection node.

58. (Previously Presented) The semiconductor integrated circuit device as claimed in claim 57, wherein said test circuit is operable to carry out the connection verification of said first connection node in a differential signal status.

59. (Currently Amended) A The semiconductor integrated circuit device as claimed in claim 56, having an output circuit operable to transmit a signal via a first connection node, and a test circuit operable to carry out a connection verification of said first connection node in a usual operation, said test circuit comprising:

a test data generating circuit operable to generate test data for carrying out the connection verification of said first connection node;

a test output buffer connected to said output circuit, the test output buffer being operable to receive test data from said test data generating circuit and to output the test data to said first connection node; and

~~wherein said test circuit further comprises ESD protectors connected to said first connection node.~~

60. (Currently Amended) A The semiconductor integrated circuit device as claimed in claim 56, further comprising: having an output circuit operable to transmit a signal via a first connection node, and a test circuit operable to carry out a connection

verification of said first connection node in a usual operation, said test circuit comprising:

a test data generating circuit operable to generate test data for carrying out the connection verification of said first connection node;

a test output buffer connected to said output circuit, the test output buffer being operable to receive test data from said test data generating circuit and to output the test data to said first connection node;

an input circuit operable to receive a signal input via a second connection node;
and

a test input buffer, connected to said second connection node, and operable to receive test data input to said second connection node.

61. (Previously Presented) The semiconductor integrated circuit device as claimed in claim 60, wherein said input circuit is operable to receive a differential signal.

62. (Previously Presented) The semiconductor integrated circuit device as claimed in claim 60, wherein said test circuit further comprises a test data processing circuit operable to process said test data.

63. (Currently Amended) A ~~The~~ semiconductor integrated circuit device ~~as claimed in claim 56,~~ having an output circuit operable to transmit a signal via a first connection node, and a test circuit operable to carry out a connection verification of said first connection node in a usual operation, said test circuit comprising:

a test data generating circuit operable to generate test data for carrying out the connection verification of said first connection node; and

a test output buffer connected to said output circuit, the test output buffer being operable to receive test data from said test data generating circuit and to output the test data to said first connection node,

wherein the semiconductor integrated circuit device is further operable to carry out a JTAG test of a device in which a single end terminal and a differential terminal coexist.

64. (Currently Amended) A The semiconductor integrated circuit device as claimed in claim 56, further comprising having an output circuit operable to transmit a signal via a first connection node, and a test circuit operable to carry out a connection verification of said first connection node in a usual operation, said test circuit comprising:

a test data generating circuit operable to generate test data for carrying out the connection verification of said first connection node; and

a test output buffer connected to said output circuit, the test output buffer being operable to receive test data from said test data generating circuit and to output the test data to said first connection node; and

a circuit operable to supply said test data to said first connection node based on a test mode signal.

65. (Currently Amended) A The semiconductor integrated circuit device as claimed in claim 56, having an output circuit operable to transmit a signal via a first connection node, and a test circuit operable to carry out a connection verification of said first connection node in a usual operation, said test circuit comprising:

a test data generating circuit operable to generate test data for carrying out the connection verification of said first connection node; and

a test output buffer connected to said output circuit, the test output buffer being operable to receive test data from said test data generating circuit and to output the test data to said first connection node,

wherein said test data are boundary scan register signals.

66. (Currently Amended) A The semiconductor integrated circuit device as claimed in claim 56, further comprising having an output circuit operable to transmit a signal via a first connection node, and a test circuit operable to carry out a connection verification of said first connection node in a usual operation, said test circuit comprising:

a test data generating circuit operable to generate test data for carrying out the connection verification of said first connection node;

a test output buffer connected to said output circuit, the test output buffer being operable to receive test data from said test data generating circuit and to output the test data to said first connection node; and

a data output buffer operable to convert a single end signal from an internal circuit to a differential signal, and to supply the differential signal to said first connection node.

67. (Previously Presented) The semiconductor integrated circuit device as claimed in claim 60, wherein the input signal is a differential signal, the circuit of device further comprising a data input buffer operable to convert the differential input signal to a single end signal, and to supply the single end signal to an internal circuit.

68. (Previously Presented) The semiconductor integrated circuit device as claimed in claim 60, further comprising a test data processing circuit operable to process said test data, said test data processing circuit comprising at least one flip-flop circuit.

69. (Currently Amended) A The semiconductor integrated circuit device as claimed in claim 56, having an output circuit operable to transmit a signal via a first connection node, and a test circuit operable to carry out a connection verification of said first connection node in a usual operation, said test circuit comprising:

a test data generating circuit operable to generate test data for carrying out the connection verification of said first connection node; and

a test output buffer connected to said output circuit, the test output buffer being operable to receive test data from said test data generating circuit and to output the test data to said first connection node,

wherein a signal line connected to said first connection node is provided with a terminating resistor.

70. (Currently Amended) A The semiconductor integrated circuit device as claimed in claim 56, having an output circuit operable to transmit a signal via a first connection node, and a test circuit operable to carry out a connection verification of said first connection node in a usual operation, said test circuit comprising:

a test data generating circuit operable to generate test data for carrying out the connection verification of said first connection node; and

a test output buffer connected to said output circuit, the test output buffer being operable to receive test data from said test data generating circuit and to output the test data to said first connection node,

wherein said test data generating circuit comprises a circuit that has a register function capable of performing scanning.

71. (Previously Presented) A test circuit operable to carry out a verification of a connection node for outputting a signal in a usual operation, comprising:

a test data generating circuit operable to generate single end test data for carrying out said verification; and

a selector circuit, operable to select the single end test data or a signal from an internal circuit based on a test mode signal, the selector circuit being further operable to convert the selected data or signal to a differential signal, and to output the differential signal.

72. (Cancelled)

73. (Currently Amended) A The semiconductor integrated circuit device as claimed in claim 72, operable to carry out a verification of a connection node for inputting a signal in a usual operation, comprising:

a data input buffer operable to receive data input to said connection node;

a test input buffer, connected to said connection node, operable to receive test data input to said connection node; and

a test data processing circuit operable to process said test data,

wherein the input signal is a differential signal.

74. (Currently Amended) A The semiconductor integrated circuit device as claimed in claim 72, further comprising operable to carry out a verification of a connection node for inputting a signal in a usual operation, comprising:

a data input buffer operable to receive data input to said connection node;

a test input buffer, connected to said connection node, operable to receive test data input to said connection node; and

a test data processing circuit operable to process said test data; and

ESD protectors connected to said connection node.

75. (Currently Amended) A The semiconductor integrated circuit device as claimed in claim 72, further comprising: operable to carry out a verification of a connection node for inputting a signal in a usual operation, comprising:

a data input buffer operable to receive data input to said connection node;

a test input buffer, connected to said connection node, operable to receive test data input to said connection node;

a test data processing circuit operable to process said test data;

a converting circuit operable to convert the input differential signal to a single end signal; and

a data processing circuit operable to process the single end signal.

76. (Currently Amended) A The semiconductor integrated circuit device as claimed in claim 72, operable to carry out a verification of a connection node for inputting a signal in a usual operation, comprising:

a data input buffer operable to receive data input to said connection node;

a test input buffer, connected to said connection node, operable to receive test data input to said connection node; and

a test data processing circuit operable to process said test data,

wherein said test data processing circuit comprises at least one flip-flop circuit.

77. (Currently Amended) A The semiconductor integrated circuit device as claimed in claim 72, further comprising operable to carry out a verification of a connection node for inputting a signal in a usual operation, comprising:

a data input buffer operable to receive data input to said connection node;
a test input buffer, connected to said connection node, operable to receive test
data input to said connection node; and
a test data processing circuit operable to process said test data; and
a test data generating circuit comprising a circuit that has a register function
capable of performing scanning.